



DATASHEET

OxTS Georeferencer

Quickly and easily create clear and accurate georeferenced pointclouds

Supporting a range of LiDAR models and navigation data from any GNSS/INS, quickly and easily boresight your sensor payload and generate high-quality georeferenced pointclouds.

The software can be used to create 3D pointclouds for an almost limitless number of applications:

- + Asset Management
- + Building Information Modelling (BIM)
- + Coastal Monitoring
- + HD Mapping
- + Geographical Surveying
- + Infrastructure Monitoring
- + Land Surveying
- + Mining
- + Road Monitoring

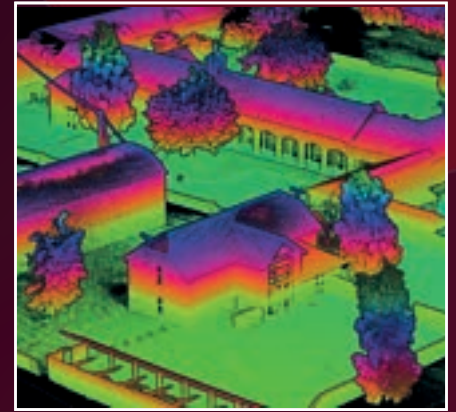
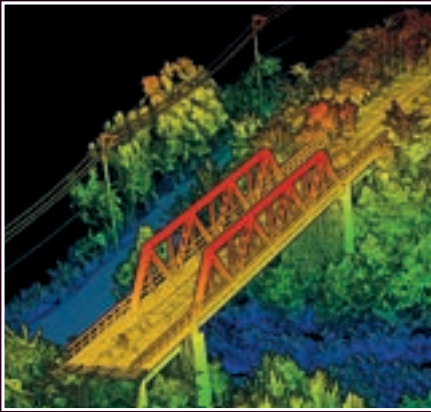
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How it works

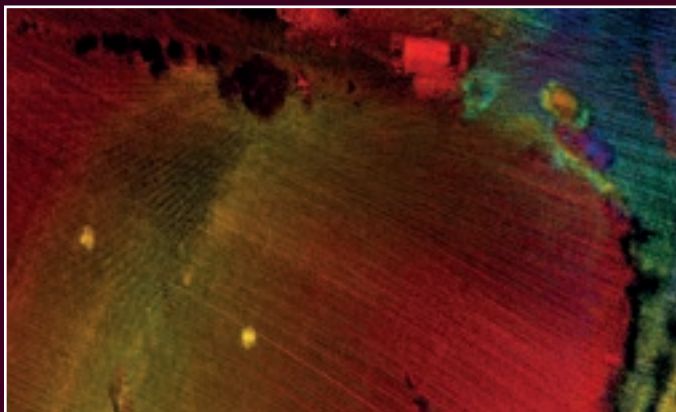
The software takes the navigation data created by an INS and combines it with raw LiDAR data [PCAP]. The resultant .LAS/.LAZ/.PCD file can then be viewed and analysed in many pointcloud viewer software application suites.

The software natively includes a number of features to help LiDAR surveyors intuitively create the pointcloud most ideal for their application.

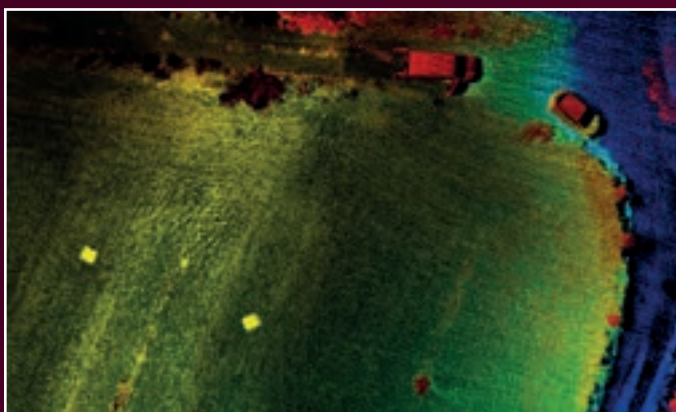


OxTS Georeferencer can be used for any application where navigation and LiDAR data is collected. The bridge survey example was conducted using a drone, and the road and building survey data was collected on a mobile mapping vehicle [car].

The pointclouds above were created by georeferencing the raw data from a LiDAR sensor with the inertial measurements from an INS. The INS used in each case differed, as is the LiDAR sensor.



Before boresight calibration



After boresight calibration

Boresight calibration

OxTS Georeferencer includes an optional boresight calibration feature. This allows you to take advantage of a unique data-driven technique to calibrate the coordinate frames of their navigation [INS] and survey [LiDAR] devices.

Creating a finely calibrated set-up is quick and simple to achieve, and will produce more precise pointclouds. The boresight calibration process will help users:

- + Eliminate double-vision
- + Minimise blurring and maximise precision
- + Collect calibration data in minutes

“As an engineer I did not know of a simple tool which could precisely measure angles between INS and LiDAR to a tenth of a degree. OxTS has solved this issue elegantly with the use of tools already present for LiDAR surveying”

Andri Karo,
Systems Integration Specialist, Skycorp Oü



LiDAR integration

OxTS Georeferencer includes integrations with many commercial grade LiDAR sensor raw data formats. These include sensors from Hesai, Ouster, Velodyne, RoboSense and more - giving users a wide variety of sensor performance and application choice.

Key features

Accuracy estimation

OxTS Georeferencer includes a formula for estimating the uncertainty in point positions based on INS and LiDAR accuracy at each moment of the survey. This can be seen clearly in the pointcloud, allowing you to edit and analyse it based on accuracy.

Global coordinates

You have the option to process in a range of coordinate systems including local coordinates, ECEF and LLA [latitude, longitude and altitude].

Processing options

OxTS Georeferencer includes a large range of processing options based on accuracy, range, speed, and angle. It also gives you the ability to add into the pointcloud point normal and trajectory data.

Batch processing

Process multiple navigation [.CSV and .NCOM] and LiDAR [.LCOM and .PCAP] files simultaneously. With OxTS Georeferencer, you can now use the same vehicle to conduct multiple surveys before processing the data at a more convenient time.

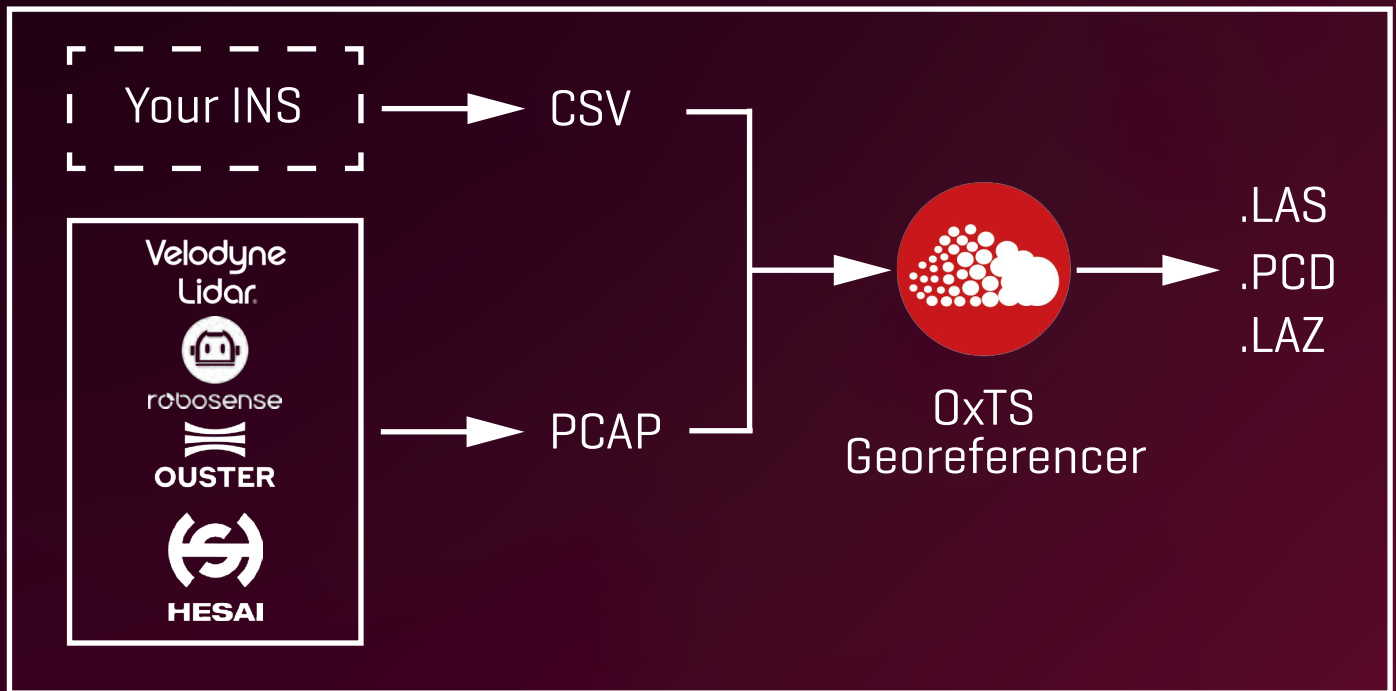
Use your existing GNSS/INS device with the anyNAV feature!

Thanks to the optional anyNAV feature, you can now use your existing navigation data with OxTS Georeferencer to boresight and georeference their LiDAR data.

Using a simple drag-and-drop method, OxTS Georeferencer will accept the navigation data from your existing INS (position, heading, pitch/roll) in .csv format and, at the click of a button, use that information to georeference

LiDAR data from any of the sensor families natively available in the software.

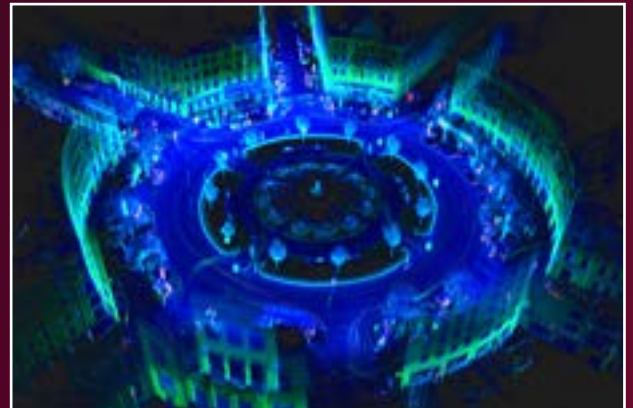
The resulting data can then be viewed in many pointcloud viewer software packages.



LiDAR Inertial Odometry (LIO)

Users of both OxTS INS devices and OxTS Georeferencer can take advantage of the optional LIO feature. LIO will improve position drift in GNSS-denied environments subsequently improving pointcloud accuracy.

Opposite is an example pointcloud created using the LIO feature.



An example pointcloud created using OxTS LIO.